



Great Lakes Green Marina Education and Outreach Project

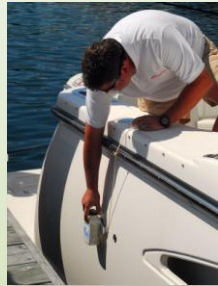
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State of Lake Michigan Conference, 2011

Clean Marina Initiatives



- **New:** Support for Great Lakes Clean Marinas, the Green Marina Education and Outreach Project
- **Network:** Great Lakes Clean Marina experts and collaborators in the region
- **Status:** Clean Marina Programs in OH, MI, WI and other states; and current challenges

Clean Marina Initiatives



- **New:** Support for Great Lakes Clean Marinas: the Green Marina Education and Outreach Project
- **Federal:** Great Lakes Restoration Initiative Funding
- **Key Deliverables:** Regional BMP document
- **Measures:** Certified marinas

What's the Clean Marina Concept?

Recreational Boating Businesses recognize the critical importance of water quality and as a result voluntarily agree to incorporate sound environmental practices into the day to day operation of their facility. Participation is above and beyond State and Federal regulatory compliance.

PROGRAM OBJECTIVES

1. Foster communication among the marina industry, state agencies, academic institutions and environmental groups.
2. Promote voluntary implementation of pollution prevention (P2) strategies, environmental risk reduction and fish and wildlife habitat enhancement in the context of good business practice.
3. Promote industry compliance with environmental laws and regulations impacting the marina industry through education and outreach.
4. Develop recognition and economic incentives for environmentally proactive marina operations.

Advantages of Being Part of The Clean Marina Program

- **Boating and a Clean Environment are intimately related**
- **Attracting new market segments that value Clean Marinas**
- **Reduction in the Waste stream can save disposal costs**
- **Regulators regard Clean Marinas as good environmental stewards.**
- **Due diligence - In the event of major environmental incident regulators will be sure to assess whether the facility was prepared to handle an environmental emergency**

Management Measures

for Marinas and Recreational Boating

- **Siting considerations**
- **Design & Maintenance**
- **Petroleum Control**
- **Solid/Liquid Waste Containment & Disposal**
- **Sewage Handling**
- **Boat Maintenance & Repair**
- **Marina Management**
- **Storm Water Management**
- **Fish Waste Management**
- **Boat Washing**
- **Public Education and Community**
- **Laws and Regulations**



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CLEAN MARINA SITE VISIT CHECKLIST

INTRODUCTION

The Michigan Clean Marina Program is an effort to assist marina and boatyard operators to protect the natural resources that provide their livelihood: clean water and fresh air. The Michigan Clean Marina Program seeks to promote clean water and fresh air through the implementation of best management practices, compliance/technical information and educational material to marina operators and boaters. The goal of the program is to encourage informed decision making that leads to a reduction in boating-related environmental impacts of pollution.

By adopting best management practices referred to in the *Michigan Clean Marina Guidebook*, your marina or boatyard will be a safer, healthier place to work. Clean Marinas will be in a better position to attract boaters who demand facilities that protect the environment. "Green" consumers are one of the fastest growing market segments today. As a Michigan Clean Marina, your marina will receive a certificate acknowledging your environmentally responsible actions, the ability to use the Michigan Clean Marina logo on your letterhead and advertising, a flag to fly from your property, and promotion by the Michigan Clean Marina Program in publications, on the web, and at public events.

The following checklist must be completed and submitted prior to requesting a marina site visit inspection. This checklist will be used by the Clean Marina certification specialist to evaluate your marina according to the standards set by the Michigan Clean Marina Program for certification. The page numbers listed next to each question refer to the appropriate page of the *Michigan Clean Marina Guidebook* where these items are discussed. To the extent possible, compliance with all "mandatory practices" is required. It is not necessary to implement all of the "recommended practices" to be recognized as a Clean Marina.

Please answer each question by checking either "yes", "no", or "N/A". The "not applicable" option is offered so those items, which do not apply to your operation, will not be counted against you in the scoring process. For example, if your marina is not required by the state to have a Marina Operating Permit you may answer by checking "N/A".

CERTIFICATION SPECIALIST

Inspector Name: _____

Phone: () _____

Email: _____

MARINA

Marina name: _____

Owner: _____

Manager: _____

Address: _____

City: _____ MI, ZIP: _____

Phone: () _____

Cell Phone: () _____

Email: _____

Email 2: _____

Other contact info: _____

CERTIFICATION PROCESS

Date

- ☐ _____ Sign pledge sheet and attend workshop
- ☐ _____ Marina self-evaluation using checklist and manual
- ☐ _____ Telephone conference or site visit, if deemed necessary
- ☐ _____ Marina incorporates recommendations
- ☐ _____ Submit completed checklist
- ☐ _____ Final site visit
- ☐ _____ Clean Marina certification

Certification Standards

State	Mandatory BMPs	Program Required BMPs	Recommended BMPs	Separate Standards for Different Marina Types or Boatyards
Michigan	100%	100 % of applicable	70%	No
Wisconsin	100 %	100%	50%	No
Ohio	100%	100%	50%	No
Indiana	100%	80% of applicable	Scored on point system	No
Pennsylvania and New York	No certification	Education Only		

Some states certify boatyards using the same BMP guidance and applicable standards

2009 National Clean Marina Survey

100% (260) changed at least one practice

39% changed five practices

25% (266) Realized cost savings

26% (269) Developed new sources of revenue

35% (267) Attracted new customers

Green Marina Education and Outreach Project

- **Funding:** (3-years)
- **Focus:** Develop uniform BMPs to reduce pollution from boating and marina activities
- **Partners:** Michigan, Ohio and Wisconsin Sea Grant, and others in the region (MN, IL/IN, NY, PA)



Enhancing Our Training Tool

The screenshot shows the Clean Marina Classroom website. At the top, there's a header with the 'CLEAN MARINA MICHIGAN' logo on the left, three small images in the center, and a login status 'You are logged in as CMP Test (Logout)' on the right. Below the header is a blue banner with the text 'CLEAN MARINA CLASSROOM'. The main content area is divided into three columns. The left column has a 'Latest news' section (no news posted yet) and a 'Wikipedia' section with a search bar and a language dropdown set to 'English'. The middle column contains an 'Introduction to the Clean Marina Classroom training website' section, which describes the course's focus on best management practices and provides registration information: 'Course Registration: Clean Marina Classroom at www.miseagrant.umich.edu/cmp' and 'Contact: Michigan Sea Grant, cmpcourse@umich.edu'. Below this is a 'Registered Users' section with login instructions and contact details for Michigan Sea Grant. The right column features a 'Welcome to the Clean Marina Classroom website!' message, a 'Calendar' for January 2011 (with the 17th highlighted), an 'Online Users' section showing 'CMP Test' and 'Elizabeth LaPorte', and a 'Messages' section stating 'No messages waiting Messages...'. At the bottom, there's a 'My courses' section with a link to the 'Clean Marina Course' and a brief description of the course content.

CLEAN MARINA MICHIGAN

You are logged in as CMP Test (Logout)

CLEAN MARINA CLASSROOM

Latest news
(No news has been posted yet)

Wikipedia
The Free Encyclopedia
English

Introduction to the Clean Marina Classroom training website
Designed for marina owners and operators, the Clean Marina Classroom focuses on best management practices about petroleum control, sewage handling, storm water management and other issues that impact water quality. This course is a key step in the process of becoming a certified Clean Marina.
To access this course, you need to be registered.
Course Registration: Clean Marina Classroom at www.miseagrant.umich.edu/cmp
Contact: Michigan Sea Grant, cmpcourse@umich.edu

Registered Users: Login with your user name and password provided with your course registration confirmation. See upper left area. Continue with course material (below center), see: My Courses. Select: Clean Marina Course.
Questions about course access?
Email Michigan Sea Grant: cmpcourse@umich.edu
Hours of operation: 8:00 AM - 5:00 PM (EST), Monday-Friday
Clean Marina Classroom, copyright Michigan Sea Grant and the Regents of the University of Michigan.

My courses
Clean Marina Course
Clean Marina Course
This course offers access to key materials about becoming a clean marina, including best management practices, references and more. This course is co-facilitated by representatives from Michigan Sea Grant and the Michigan Boating Industries Association.

Welcome to the Clean Marina Classroom website!

Calendar
January 2011
Sun Mon Tue Wed Thu Fri Sat
1
2 3 4 5 6 7 8
9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31

Online Users
(last 5 minutes)
CMP Test
Elizabeth LaPorte

Messages
No messages waiting
Messages...

Clean Marina Classroom: <http://cmpcourse.com>
Videos: <http://www.youtube.com/user/michiganseagrant>

www.cmpcourse.com

Topic outline

Welcome to the Michigan Clean Marina Program online training course! Successful completion of this course will help marina owners make progress toward becoming a certified clean marina.

Clean Marina Classroom, copyright Michigan Sea Grant College Program and the Regents of the University of Michigan.

 [About This Course: Clean Marina 101](#)

Resources

 [News forum](#)

 [Site Visit Checklist - Part 1 - Mandatory BMPs \(web\)](#)

 [Site Visit Checklist - Part 2 - Recommended BMPs \(web\)](#)

1 Siting Considerations

New and expanding marinas face important decisions in choosing the optimal site for their facilities. Taking stock of natural resources and topography at this stage can help owners avoid or minimize environmental impacts and protect marina structures from damage.

 [Unit Guide: Siting Considerations](#)

 [Unit Review](#)

2 Marina Design and Facility

Marina facilities and structures can be designed and maintained to minimize environmental impacts and protect water quality. This unit covers land use topics related to marina structures, landscape design, and grounds maintenance.

 [Unit Guide: Marina Structures and Grounds](#)

 [Best Management Practices - Marina Structures](#)

 [Unit Review](#)

3 Storm Water Management

Effectively managing storm water runoff is critical for marinas. This week you'll learn about traditional storm water management strategies and low-impact alternatives.

 [Unit Guide: Storm Water Management](#)

 [Best Management Practices - Storm Water Management](#)

 [Unit Review](#)

4 Boat Maintenance and Repair

One of the easiest ways to contain waste is to restrict the area where maintenance activities are performed. In addition, this unit covers practices that address sanding dust, blasting debris, impacts of pressure washing, painting operations, and engine repair.

 [Unit Guide: Boat Maintenance and Repair](#)

 [Best Management Practices - Boat Maintenance](#)

Resources

 [Clean Boating Tip Sheet](#)

5 Petroleum Control

Adopting effective fueling practices and emergency response plans are among the most important things marinas can do to protect water quality.

 [Unit Guide: Petroleum Control](#)

 [Best Management Practices - Petroleum Control](#)

 [Unit Review](#)

Resources

 [Clean Boating Tip Sheet](#)

6 Sewage Handling

Raw or poorly treated sewage is harmful to human health and water quality. Well-maintained septic systems, pumpout stations, and other strategies allow marinas to assist boaters in proper sewage disposal.

 [Unit Overview: Sewage Handling](#)

 [Best Management Practices - Sewage Handling](#)

 [Unit Review](#)

Resources

 [Clean Boating Tip Sheet](#)

7 Waste Containment and Disposal

This unit describes ways to effectively reduce and manage waste. Content addresses fish waste management, solid waste, hazardous products, recycling and recommended disposal methods.

 [Unit Guide: Waste Containment and Disposal](#)

 [Best Management Practices - Waste Containment](#)

 [Unit Review](#)

Resources

 [Table 1. Recommended Disposal Methods](#)

 [Pollution Report and Action Log](#)

 [Clean Boating Tip Sheet](#)

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Marina Structures and Grounds

Land management decisions, operating procedures, and structural improvements may all contribute to—or detract from—the quality of the land and water surrounding your marina. Roads and parking areas may convey storm water directly into adjacent waterways. Dredging may re-suspend toxic compounds in sediment such as heavy metals, hydrocarbons, and synthetic chemicals. Hazardous chemicals may be leached into the water from piers and other similar structures.

Broken or degraded floats may release buoyant debris, which birds and fish mistake for food. Finally, the location and installation of floating structures may lead to accelerated coastal erosion and sedimentation. Sedimentation is the settling of soil particles through the water column, which can block sunlight, reduce the feeding efficiency of visual feeders, clog fish gills, cause shoaling, and lead to additional erosion.

Best Management Practices

Marina Facilities and Structures

Docks and mooring buoys should be located within the marina owner's riparian interest area. These structures are located within a "riparian interest area." A riparian interest area is a section of bottomlands in an inland lake or stream that is owned by a riparian owner. Imagine, for instance, a circular lake where the riparian interest areas are pie-shaped pieces that extend from the lake frontage corners out to the central point of the lake. In the simplest case of a linear river, the riparian interest starts from the river frontage corners to the centerline of the channel.

The docks and mooring buoys should be located so that ingress and egress to and from the marina is within the marina's riparian interest area. A rule of thumb that can be used to site docks is to allow one and one-half times the slip length between the end of the finger pier and the estimated riparian interest area boundary. For broadside docking, the marina owner should allow at least one and one-half times the beam width between the boats and the riparian interest area line. If there is not sufficient room between the dock or mooring buoy and the riparian interest area line, then the dock and/or mooring buoy should be reconfigured within the marina's riparian interest area or the marina owner needs to obtain a written easement from the affected adjacent riparian owner allowing ingress/egress through the adjacent riparian interest area.

Use Fixed or Floating Piers to Enhance Water Circulation

While being mindful of the need for pier/dock systems to provide access during routine operations and under emergency circumstances (e.g., evacuation preceding or during a storm), piers, and other structures should be placed to enhance, rather than obstruct, water circulation.

- Select an open design for new or expanding marinas. Open marina designs have no fabricated or natural barriers to restrict the exchange of ambient water and water within the marina area.
- Install wave attenuators (if permitted) to reduce the force of incoming water, if protection is necessary. Wave attenuators do not restrict water exchange, nor do they interfere with bottom ecology or aesthetic view. Furthermore, they are easily removed and do not significantly interfere with fish migration and shoreline processes.
- Design new or expanding marinas with as few segments as possible to promote circulation within the basin. The fewer the segments, the better the circulation.

Unit Overview

- Marina facilities
- Landscape design
- Maintenance
- Creating habitat

Storm Water Management

Storm water runoff is precipitation that has not been absorbed by the ground. Rather, it washes over the surface of the land picking up pollutants as it travels. Storm water runoff may collect soil particles, petroleum products, residues from industrial activities, litter, and pet waste. All of these pollutants are carried with the runoff into surface waters where they adversely affect water quality.

The volume of storm water runoff increases as natural forests and fields are replaced with hard surfaces such as buildings, parking lots, driveways, and roads. In addition, without any plants to disrupt the flow, storm water moves across the land more quickly than under predevelopment conditions. This greater, faster flow of storm water can severely degrade receiving water bodies by accelerating erosion, which leads to flooding, the destruction of plant and animal life, and the loss of habitat. In addition, pollutants carried by storm water impair water quality by increasing levels of nitrogen, phosphorous, suspended solids, biological oxygen demand, and chemical oxygen demand. Temperatures and levels of toxic metals and hydrocarbons tend to increase, dissolved oxygen decreases, and the acidity-alkalinity of the water typically changes. The result is that near shore areas are less able to support wildlife like young fish. In addition, using the water for human recreation becomes less desirable.

Best Management Practices

Practice Low Impact Development

The goal of low impact development is to develop a site without altering the existing hydrologic cycle. The approach maximizes a site's natural features—including vegetation—minimizing the need for expensive storm water control devices. It differs from traditional storm water management, which uses structures like curbs, gutters, and storm drains to move water off-site as efficiently as possible. Traditional structures cause unnatural volumes of runoff to move into receiving waters at high velocity.

Capture and treat storm water on-site. For example, direct the runoff from your parking lot to a bio-retention area rather than toward a storm sewer pipe. A "rain garden" or constructed wetlands are examples of bio-retention areas, a water quality practice in which plants and soils remove pollutants from stormwater naturally. Rain gardens are created in low-lying areas, with specific layers of soil, sand, and organic mulch. These layers naturally filter the rain as it enters. After a storm, the soil absorbs and stores the rainwater and nourishes the surrounding grasses, trees, and flowers. Rain gardens have the added advantage of being attractive areas that can provide shade and wildlife habitat, act as wind breaks and reduce noise from surrounding areas.

Cultivate Vegetated Areas

Healthy soil and vegetation capture, treat, and slowly release storm water. The water is cleaned through a combination of microbial action in the soil, vegetative uptake, evaporation, and transpiration.

- Plant environmentally sensitive landscapes at the edge of parking lots and within islands in parking lots.
- Plant vegetated buffers between your upland property and the water's edge. **R7 A. Vegetated Buffers.** (Photo, right, shows a 10-foot buffer zone between a parking area and the water.)
- Position downspouts so that they drain to vegetated areas:
 - Avoid draining to concrete or asphalt. Keep in mind the necessity for crushed stone or some other restrictor to slow the water's pace at discharge. This will minimize erosion and allow water to drain into vegetated areas at a manageable pace.

Supervise Fueling: Environmental Recommendations

- Always have a trained employee at the fuel dock to oversee or assist with fueling. **R8 I. Staff Training**
- Train employees to clarify what the boater is asking. For example, as your employee passes the fuel nozzle to the boater, have him or her say: "This is gasoline. You asked for gasoline."
- Train employees to hand boaters oil absorbent pads with the fuel nozzle. Request that the boaters use them to capture backsplash and vent line overflow.
- Make nontoxic fuels, such as biodiesel available. Biodiesel, made from soybeans, requires no retrofitting or engine modification. It is biodegradable, nontoxic and has very low sulfur.
- Attach a container to the external vent fitting to collect overflow—some products attach to the hull with suction cups. A rubber seal on the container fits over the fuel vent allowing the overflow to enter the container. Fuel captured in this manner can be added to other boats to be fueled.
- Instruct fuel dock personnel and boaters to listen to filler pipes to anticipate when tanks are nearly full.
- Encourage boaters to fill their fuel tanks just before leaving on a trip to reduce spillage due to thermal expansion

notified any time a spill produces a sheen on the water. Call the National Response Center at (800) 424-8802. Report the location, source, size, color, substance, and time of the spill. Failure to report a spill may result in fines.

M9. Oil Spill Response (Federal)



The Clean Water Act (33 CFR 153.305) also prohibits the use of soaps or other dispersing agents to dissipate oil on the water or in the bilge without the permission of the Coast Guard. Soaps, emulsifiers, and dispersants cause the petroleum to sink in the water column and mix with sediments where they will remain for years. Also, the soaps themselves are pollutants. You may be fined up to \$25,000 per incident for the unauthorized use of soap or other dispersing agents on the water or in the bilge.

Unit Overview

- Practice low impact development
- Cultivate vegetated areas
- Minimize impervious areas
- Use structural controls as necessary
- Control sediment from construction sites
- Stencil storm drains



Regulatory Issues

National Pollutant Discharge Elimination System (NPDES)

www.cmpcourse.com

Unit Review

[Start again](#)

1

Marks: --/1

In general, placing new facilities in previously-developed waterfront sites or **brownfields** is preferable to disturbing pris

Answer:

☐ True

☐ False

[Submit](#)

2

Marks: --/1

The U.S. Fish and Wildlife Service and the Michigan Department of Natural Resources must assess all proposed develop endangered and threatened species and habitat protection areas.

[Home](#) ▶ [CleanMarinaCourse-101](#) ▶ [Glossaries](#) ▶ [Search](#)

Brownfields:

Previously developed sites.

With certain legal exclusions and additions, the term "brownfield site" means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. (Source: EPA)

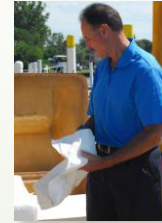
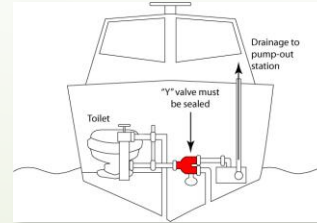
» [Glossary of Terms](#)

Our Competitive Edge



- Regional collaboration
- Established univ., gov., and industry connections
- Protecting drinking water supply
- Commitment to science-based methods
- Leveraging existing tools and SG network
- Concrete measures

Measures



Key Strategic Outcome:

- Coastal communities and businesses will be more environmentally and economically sustainable by:
 - Adopting best management practices that minimize runoff and water pollution;
 - Limiting the spread of invasive species; and
 - Protecting natural habitats.

Measurable Results:

- # certified marinas in GL
- # participants in training courses, workshops, webinars.
- # of best practices implemented.
- # AOCs impacted in GL

Networks

- **Teams and Networks Developed:**

1. **Tech Team:** 4 of 15
Tech Team members provided comments to BMPs. *Purpose:*

- Facilitate consistency in certification standards, to extent possible given state rules.
- Include experts from marina/boating industry, regulatory agencies, and Clean Marina programs.



2. **Great Lakes Clean Marina (Outreach) Network:** First meeting sparked good discussion about key issues.

Purpose:

- Assisting with key issues (hull washing)
- Helping to promote regional BMPs in all GL states.
- Sharing training and outreach tools to help sustain these efforts in the region.

Key Issues

- Hull washing - Marinas are concerned that more stringent requirements are coming and are uncertain about investing in practices now that may be insufficient if state rules are modified later.
- No discharge zones
- Antifreeze collection
- Stormwater permits
- Pesticide application
- Marine debris (shrink-wrap, monofilament)
- Sustained funding for training and certification efforts (decrease in state budgets)

